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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/651,385	08/29/2000	Sanjay Dabral	042390.P5258D	9681

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EXAMINER	
DIAZ, JOSE R	

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/651,385	DABRAL ET AL.	
	Examiner	Art Unit	
	José R. Díaz	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-23 and 26-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-23 and 26-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 26 and 34 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form. Claims 26 and 34 recites the limitation of "forming a plurality of unit cells" which is also recited in claims 20, line 7 and claim 30, line 7, respectively.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 20-23, 26 and 30-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 20 and 30, the limitation "a junction region of the integrated circuit substrate surrounding the first doped region and separating the first doped region from the second well" as recited in claims 20 and 30 is confusing since it is unclear where in the substrate the junction is formed and/or located. In order to overcome this rejection, the examiner suggests to amend the recited limitation as follow:

Please amend claim 20, lines 13-14:

a junction region ~~of the integrated circuit substrate~~ completely surrounding the first doped region ~~and separating the first doped region from the second well~~

Please amend claim 30, lines 13-14:

a junction region ~~of the integrated circuit substrate~~ completely surrounding the first doped region ~~and separating the first doped region from the second well~~

Claims 21-23, 26 and 31-36 are rejected due to their dependency on claims 20 and 30, respectively.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marum et al. (US Pat. No. 5,500,546) in view of Ker et al. (US Pat. 5,714,784).

Regarding claim 27, Marum et al. teaches a method of forming an integrated circuit comprising:

forming a first protection circuit (14) on the integrated circuit substrate (see fig. 2);

forming a performance circuit (20) occupying a first well of an integrated circuit substrate (see fig. 2). [With regards to the first well, Marum et al. teaches that the performance circuit (20) is a CMOS device (col. 3, lines 27-28). It is very well known in the art that a CMOS device inherently include wells or tubs, since such wells or tubs are required to accommodate both nMOS and pMOS transistors on the same substrate],

forming a protection circuit (40) (see fig. 3) occupying a second well (34) of the integrated circuit substrate (see fig. 3c) separate from the first well [please note that the device (60) formed in the well (34) does not include the CMOS device (20) (see figures 3c and 3d), thus it is inherent that the second well (34) is separated from the well of the CMOS device (20)], the protection circuit including a plurality of unit cells (62, 64) forming a plurality of islands in the second well (34) surrounded by a doped region (32) (see figure 3c); and

coupling the protection circuit (40) to the performance circuit (20) (see figure 3).

However, Marum et al. fails to teach the step of forming a performance circuit by forming a unit transistor device having a drain region comprised of a doped region of the integrated circuit substrate occupying an area sufficient to support a contact to the doped region; forming a gate region of the integrated circuit substrate surrounding the doped region; and forming a contact to the doped region.

Ker et al. teaches that it is well known in the art to form the performance circuit by forming a unit transistor (figure 4 and abstract) device having a drain region (41) comprised of a doped region of the integrated circuit substrate occupying an area sufficient to support a contact (46) to the doped region (see fig. 4); forming a gate region (42) of the integrated circuit substrate surrounding the doped region (41) (see fig. 4); and forming a contact to the doped region (46) (see fig. 4).

Marum et al. and Ker et al. are analogous art because they are from the same field of endeavor as applicant's invention. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the steps of: forming a unit transistor device having a drain region comprised of a doped region of the integrated circuit substrate occupying an area sufficient to support a contact to the doped region; forming a gate region of the integrated circuit substrate surrounding the doped region; and forming a contact to the doped region. The motivation for doing so, as is taught by Ker et al., is reducing total layout area and to cut cost (col. 4, lines 5-9). Therefore, it would have been obvious to combine Ker et al. with Marum et al. to obtain the invention of claims 27-29.

Regarding claim 28, Ker et al. further teaches that the doped region (41) being a first doped region of a first dopant (see fig. 4) in a well of the substrate (see col. 4, lines 15-17), the well being doped with a concentration of a second dopant (see col. 4, lines 15-17) and wherein forming a performance circuit further comprises: forming a source region (43) of the transistor doped with the first dopant in the well separated from the drain region by the gate to form a unit transistor (see fig. 4).

Regarding claim 29, Ker et al. further teaches that forming a performance circuit includes: forming a plurality of unit transistors (consider the squares surrounded by region 43 in fig. 4).

Allowable Subject Matter

7. Claims 20-23, 26 and 30-36 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

8. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach, disclose, or suggest, either alone or in combination, a protection circuit coupled to a performance circuit comprising a plurality of unit cells, wherein each of the plurality of cells includes:

a second well of a second dopant;

a first doped region of a first dopant formed in the second well; and

a third doped region in the second well adjacent to the first doped region, the third doped region surrounding the plurality of cells and doped with a greater concentration of the second dopant;

wherein the first doped region forms an anode of a diode, and the third doped region forms a cathode of the diode.

Response to Arguments

9. Applicant's arguments filed March 29, 2005 have been fully considered but they are not persuasive.

10. Applicants arguments with regards to claims 20-23, 26 and 30-36 are moot in view of the rejection under the second paragraph of 35 U.S.C. 112 presented above.

11. With regards to claims 27-29, applicant argues that Marum fails to teach the limitation of a second protection circuit coupled between the first protection circuit and the performance circuit (see remarks on pages 8-9). However, this argument is not persuasive. Marum, as stated in the rejection, does teach the claimed limitation in figures 2, 3 and 3c, which show a second protection circuit (60) formed between a performance circuit (20) [see fig. 3] and a first protection circuit (14) that is connected to the protection circuit (20) [see fig. 2] through the current limit (16) [see fig. 3].

Therefore, the combination of references teach the claimed limitation. As such, the rejection is considered to be proper.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (571) 272-1727. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

José R. Díaz
Examiner
Art Unit 2815

TOM THOMAS
SUPERVISORY PATENT EXAMINER